



09914658 021502
097914658
Filed PCT/PTO 19 AUG 2002

~7048421
SEQUENCE LISTING

<110> Hobom, Gerd
Flick, Ramon
Menke, Anette
Azzeh, Maysa

<120> Stable Recombinant Influenza Viruses Free of Helper
Viruses

<130> Kreisler 1098

<140> US 09/914,658
<141> 2001-08-31

<140> PCT/EP00/01903
<141> 2000-03-03

<150> EP 99104519
<151> 1999-03-06

<160> 26

<170> Microsoft word XP

<210> 1
<211> 4930
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PHL2969

<400> 1
cgtagcaagc ttctagaggg attggctgag acgaaaaaca tatgctagag ggattggctg 60
agacgaaaaa catatgctag agcggccgcc accgcggtgg agctccagct tttgttccct 120
ttagtgaggg ttaattgcgc gcaggcctag ctaggtaaag aaaaataccc ttgtttctac 180
taataacccg gcggcccaaa atgccgactc ggagcgaaag atatacctcc cccggggccg 240
ggaggtcgcg tcaccgacca cgccgcccgc ccaggcgacg cgcgacacgg acacctgtcc 300
ccaaaaacgc caccatcgca gccacacacg gagcgcccgg ggccctctgg tcaaccccag 360
gacacacgcg ggagcagcgc cgggcccggg acgcccctcc ggccgcccgt gccacacgca 420
ggggggccggc ccgtgtctcc agagcgggag ccggaagcat ttctggccgg cccctcctac 480
gaccgggaca cacgagggac cgaaggccgg ccaggcgcca cctctcgggc cgcacgcgcg 540
ctcagggagc gctctccgac tccgcacggg gactcgccag aaaggatcgt gacctgcatt 600
aatgaatcag gggataacgc aggaagaagc atgtgagcaa aaggccagca aaaggccagg 660
aaccgtaaaa aggccgcgtt gctggcgttt ttccataggc tccgcccccc tgacgagcat 720
cacaataatc gacgtcaag tcagaggtgg cgaaacccga caggactata aagataccag 780
gcgtttcccc ctggaagctc cctcgtgcgc tctcctgttc cgaccctgcc gcttaccgga 840
tacctgtccg cttttctccc ttccgggaagc gtggcgcttt ctcatagctc acgctgtagg 900
tatctcagtt cgggtgtagt cgttcgtccc aagctgggct gtgtgcacga acccccgtt 960
cagcccagacc gctgcgcctt atccggtaac tatcgtcttg agtccaaccc ggtaagacac 1020
gacttatcgc cactggcagc agccactggt aacaggatta gcagagcgag gtatgtaggc 1080
gggtctacag agttcttgaa gtgggtggcct aactacggct acactagaag gacagtattt 1140
gggtatctgcg ctctgctgaa gccagttacc ttcggaaaaa gagttggtag ctcttgatcc 1200
ggcaaacaaa ccaccgctgg tagcgggtgtt tttttgttt gcaagcagca gattacgcgc 1260
agaaaaaag gatctcaaga agatcctttg atcttttcta cggggtctga cgctcagtg 1320
aacgaaaact cacgttaagg gatttttggt atgagattat caaaaaggat cttcacctag 1380
atccttttaa attaaaaatg aagtttttaa tcaatctaaa gtatatatga gtaaaacttg 1440
tctgacagtt accaatgctt aatcagtgag gcacctatct cagcgatctg tctatttcgt 1500
tcatccatag ttgcctgact ccccgctcgt tagataacta cgatacggga gggcttacca 1560
tctggcccca gtgctgcaat gataccgcga gacccagctc caccggctcc agatttatca 1620

~7048421

```

gcaataaacc agccagccgg aagggccgag cgcagaagtg gtcctgcaac tttatccgcc 1680
tccatccagt ctattaattg ttgccgggaa gctagagtaa gtatgtcgcc agttaaatagt 1740
ttgCGcaacg ttgttgccat tgctacaggc atcgtgggtg cacgctcgct gtttggtatg 1800
gcttcattca gctccggttc ccaacgatca aggcgagtta catgatcccc catgttgtgc 1860
aaaaaagcgg ttagtctctt cggtcctccg atcgttgtca gaagtaagtt ggccgcagtg 1920
ttatcactca tggttatggc agcactgcat aattctctta ctgtcatgcc atccgtaaga 1980
tgcttttctg tgactggtga gtactcaacc aagtcatctt gagaatagt tatgCGGCGa 2040
ccgagttgct ctgcccggc gtcaacacgg gataataccg cgccacatag cagaacttta 2100
aaagtgtctc tcattggaaa acgttcttcg gggcgaaaaa tctcaaggat cttaccgctg 2160
ttgagatcca gttcgatgta acccactcgt gcaccaact gatcttcagc atcttttact 2220
ttcaccagcg tttctgggtg agcaaaaaca ggaaggcaaa atgccgcaaa aaaggggaata 2280
aggcgacac ggaatgttg aatactcata ctcttcttt ttcaatatta ttgaagcatt 2340
tatcagggtt attgtctcat gagcggtatc atatttgaat gtatttagaa aaataaaaca 2400
aagagtttgt agaaacgcaa aaaggccatc cgtcaggatg gccttctgct taatttgatg 2460
cctggcagtt tatggcgggc gtctgccccg ccaccttcg ggcggttgct tcgcaacgtt 2520
caaatccgct cccggcggat ttgtcctact caggagagcg ttcaccgaca aacaacagat 2580
aaaacgaaag gcccagttct tcgactgagc ctttcgtttt atttgatgcc tggcagttcc 2640
ctactctcgc atggggagac cccacactac catcggcgct acggcgtttc acttctgagt 2700
tcggcatggg gtcagggtgg accaccgcgc tactgcccgc aggcgaattc tgttttatca 2760
gaccgcttct gcgttctgat ttaatctgta tcaggctgaa aatcttctct catccgcaa 2820
aacagaagct agcggccgat ccccaaaaaa aaaaaaaaaa gagtccagag 2880
tgcccccgcc gttccgcgcc gggggggggg caaagtttcg acactttcgg acatctggtc 2940
gacctccagc atcgggggaa gggggggggg gggggggggg cccggagtac tggctcgacct 3000
ccgaagttgg gggggagttag aaaaaaaaaa gataatcact cactgacgta cgttgagcaa 3060
ctgactgaaa tgccttgagc aaacagggtg aatgcctgac gtcttttagc aaagcagggt 3120
agataatcac tctactgagt acatccacat cgtaccagga ttggctgaga cgaaaaacat 3180
attgtaccag ggattggctg agacgaaaaa catattgtag gtacaaaaat gaacactcaa 3240
atcctggttt tcgcccctgc ggagtcacac cccacaaatg cagacaaaaat ttgtcttgga 3300
catcatgctg tatcaaatgg caccaaagta aacacactca ctgagagagg agtagaagtt 3360
gtcaatgcaa cggaacagat ggagcggaca aacatccccca aaatttgctc aaaagggaaa 3420
agaaccactg atcttgGCCa atgcggactg ttagggacca ttaccggacc acctcaatgc 3480
gaccaatttc tagaattttc agctgatcta ataactgaga gacgagaagg aaatgatgtt 3540
tgttaccCGg ggaagtttgt gggattcaca tatagtggaa taaggacca cggacaact 3600
gggattgaca aagaacaat gtcttcattc tatgcagaaa tggagtggct cctgtcaaat 3720
agtgcattga gaagatcagg gtcttcattc tatgcagaaa tggagtggct cctgtcaaat 3780
acagacaatg cttctttccc acaaatgaca aaatcataca ccgaacagac caaactatat 3840
gctctgatag tctggggaat ccaccattca ggtatcaaat atcatcaatc ttttggtccg 3900
gggagtggaa ataaactgat aacagtcggg agttccaaat ggattgattt tcattgggtg 3960
agtccaggaa cacgaccgca gataaatggc cggctccggac ggttccaaat agctccaaat 4020
atcttgatc ccaatgatac agttactttt agtttcaatg gggctttcat ggttgatgct 4080
cgtgccagct tcttgagggg aaagtccatg gggatccaga gcgatgtgca gccttttcaa 4140
aattgcgaag ggggaatgcta ccacagtgga gggactataa caagcagatt aagtttatta 4200
aacataaata gcagagcagt tggcaaatgc ccaagatatg taaaacagga aagaggcctg 4260
ttggcaactg ggatgaagaa cgttcccgaa ccttccaaaa aaaggaaaaa cgggtggtac 4320
tttggtgcta tagcagggtt tattgaaaat ggttggaag gtctggtcga cagactacaa aagcacccaa 4380
ggtttcaggc atcagaatgc acaaggagaa ggaactgcag aatagactca ttaagaaaac caaccagcaa 4440
tcggcaattg atcagataac cggaaagtta attagactca agattggcaa ttaattaaac 4500
tttgagctaa tagataatga attcactgaa gtggaaaagc agattggcaa tttggaatg 4560
tggaccaaag actccatcac agaagtatgg tcttacaatg ctgaacttct tgtggcaatg 4620
gaaaaccagc aactattga tttggctgat tcagagatga acaagctgta gttgctttga aatttttcat 4680
aggaaacaat taaggggaaa tgctgaagag gatggcactg gttgctttga cttatgatca cagcaaatat 4740
aaatgtgacg atgattgtat ggctagtata aggaacaata cttatgatca tagtggtac 4800
agagaagaag cgatgcaaaa tagaatacaa attgaccag tcaaattgag tagtggtac 4860
aaagatgtga tactttggtt tagcttcggg gcatcatgct ttttgcttct tgccattgca 4920
atgggccttg ttttcatatg tgtgaagaac ggaacatgc ggtgcactat atgcatttaa 4930
agcttgcag
```

<210> 2
 <211> 5811
 <212> DNA
 <213> Artificial Sequence

~7048421

<220>
 <223> Description of Artificial Sequence: pAM403

<400> 2
 aattcctttg cctaatttaa atgaggactt aacctgtgga aatattttga tgtgggaagc 60
 tgttactgtt aaaactgagg ttattggggt aactgctatg ttaaacttgc attcagggac 120
 acaaaaaact catgaaaatg gtgctggaaa acccattcaa ggggtcaaatt ttcatttttt 180
 tgctgttggg ggggaacctt tggagctgca ggggtgtgta gcaactaca ggaccaaata 240
 tcctgtctaa actgtaaccc caaaaaatgc tacagttgac agtcagcaga tgaactactga 300
 ccacaaggct gttttggata aggataatgc ttatccagtg gagtgcctggg ttcctgatcc 360
 aagtaaaaat gaaaacacta gatatttttg aacctacaca ggtggggaaa atgtgcctcc 420
 tgttttgcac attactaaca cagcaaccac agtgcttctt gatgagcagg gtgttgggac 480
 cttgtgcaaa gctgacagct tgtatgtttc tgctgttgac atttggggc tgtttacca 540
 cacttctgga acacagcagt ggaagggact tcccagatat tttaaaatta cccttagaaa 600
 gcggctctgtg aaaaaccctt acccaatttc ctttttggta agtgacctaa ttaacaggag 660
 gacacagagg gtggatgggg agcctatgat tggaaatgtc tctcaagtag aggagggttag 720
 ggtttatgag gacacagagg agcttcttgg ggatccagac atgataagat acattgatga 780
 gtttggaaca accacaacta gaatgcagtg aaaaaaatgc tttatttgtg aaatttgtga 840
 tgctattgct ttatttgtaa ccatataaag ctgcaataaa caagttaaca acaacaattg 900
 cattcatttt atgtttcagg ttcaggggga ggtgtgggag gttttttaa gcaagtaaaa 960
 cctctacaaa tgtgggtatg ctgattatga aattaaaaaa gttttttaa catcaaata 1020
 tccttattaa cccctttaca cctgtgtgga gtaagaaata acagtatgtt atgattataa 1080
 ttaatagcag acctctatg ggttacagaa tatttttcca taattttctt gtatagcagt 1140
 ctgttatgcc tacttataaa gtaaatagca aagcaagcaa gagttctatt actaaacaca 1200
 gcagcttttt cttttgtggt caattctgaa ggaagtccct tggggctctc tacctttctc 1260
 gcatgactca aaaaacttag atgttgagag ttagcagtag cctcatcatc actagatggc 1320
 ttcttttttg gaggagtaga gttttcttca ttaaaggcat tccaccactg ctcccattca 1380
 atttcttctg agcaaaaacag gttttcttca caaacaatta gaatcagtag tttaacacat 1440
 tcagttccat aggttggaaat ctaaaatata gagcttttaa tctctgtagg tagtttgtcc 1500
 tatacactta aaaattttat atttacctta gaggctttaa tccgggacca aagcggccat 1560
 aattatgtca caccacagaa gtaagggttc gttcgggggc atggatgcgc ggatagccgc tgctgggttc 1620
 cgtgcctccc cactcctgca actgcccgtg gaactccgcg aggtcgtcca gcctcaggca 1680
 ctggatgccg acggatttgc actgcccgtg cccgggggtg gcaagaact ccagcatgag 1740
 gcagctgaac caactcgcga tccagccggc gtcccggaaa aggttgggag agcccaacct 1800
 atccccgcgc tggaggatca aatcgaaatc cgtgatggc ctagaggcat ttcagtttcg 1860
 ttcatagaag gcggcgggtg aatcgaaatc cgtgatggc ctagaggcat ttcagtttcg 1920
 ggtcatttcg atgaattcga gctcgggtacc cggggatcct agtcccgtc agaagaactc 1980
 tcctcacgga ctcatcagag cgatgcgctg cgaatcgagg ggcggcgtac cgtaaagcac 2040
 gtcaagaagg cgatagaagg cgccgccaag ctcttcagca cgggacacag tgggtcacga gcccctgatg 2100
 gaggaagcgg tcagcccatt ccacaccag ggcacatcgga gctggcgcga ggtcagctc 2160
 tatgtcctga tagcgggtccg tcggcaagca ggcacatcgga gctggcgcga ggtcagctc 2220
 gccattttcc accatgatat tgagcctggc gatcgacaag accggttcc atccgagtag 2280
 gccgtcgggc atgcgcgctt gatcgacaag accggttcc atccgagtag ggtatcaagc 2340
 ctcttcgtcc agatcatcct ggtcgaatgg ctcggcagga gcaaggtgag atgacaggag 2400
 gatgcgatgt ttcgcttggg tcgatacttt ccagtcctt cccgcttcag ctgcctcgtc 2460
 ccgcatcgca tcagccatga ccaatagcag ggcacatcgga gctggcgcga ggtcagctc 2520
 atcctgcccc ggcacttcgc cgcgcaaggaa ggcacatcgga gctggcgcga ggtcagctc 2580
 gagcacagct ggcgcaaggaa ggcacatcgga gctggcgcga ggtcagctc 2640
 ctgcagttca ttcagggcac cggacaggtc ggtccttgaca aaaagaaccg ggcgcccctg 2700
 cgctgacagc cggacacagc cggcatcaga gcagccgatt gtctgttggg cccagtcata 2760
 gccgaatagc ctctccaccc aagcggccgg agaacctgcg tgcaatccat cttgttcaat 2820
 catgcgaaac gatcctcatc ctgtctcttg atcagatctt tttgcagggc ttcccaacct 2880
 ccttggcggc aagaaagcca tccagtttac tttgcagggc ttcccaacct 2940
 cgccccagct ggcaatttcg gttcgttgc tgtccataaa accgcccagt ctagctatcg 3000
 ccatgtaagc cactgcaag ctacctgctt tctctttgag cttgcttctt ccttgttcca 3060
 gatagcccag tagctgacat tcatccgggg tcagaccgtg ttctgcggac tggctttcta 3120
 cgtgttccgc ttccttttag agcccttgcg ccttgagtg ttcgcccagc gtgaagcttt 3180
 ttgcaaaagc ctaggcctcc aaaaaagcct cctcactact tctggaatag ctgagaggcc 3240
 gaggcggcct cggcctctgc ataaataaaa aaaattagtc agccatgggg cggagaatgg 3300
 gcggaactgg gcggagttag gggcgggatg ggcggagttt ggggcccggg tatgggtgct 3360
 gactaattga gatgcagtgt ttgcatactt ctgcctgctg gggagcctgg ggactttcca 3420
 cacctgggtg ctgactaatt gagatgcagt ctttgcatac ttctgcctgc tggggagcct 3480
 ggggactttc cacaccctaa ctgacacaca ttccacagct gcctcgcgcg tttcgggtgat 3540

~7048421

```

gacggtgaaa acctctgaca catgcagctc ccggagacgg tcacagcttg tctgtaagcg 3600
gatgccggga gcagacaagc ccgtcagggc gcgtcagcgg gtgttgccgg gtgtcggggc 3660
gcagccatga cccagtcacg tagcgatagc ggagtgatga ctggcttaac tatgcggcat 3720
cagagcagat tgtactgaga gtgcaccata tgcggtgtga aataccgcac agatgcgtaa 3780
ggagaaaata ccgcatcagg cgctcttcgg actcaaaggc ggtaatacgg ctgcgctcgg 3840
tcgttcggct gcggcgagcg gtatcagctc gagcaaaagg ccagcaaaag gccaggaacc 3900
aatcagggga taacgcagga gcggttttcc ataggctccg cccccctgac gagcatcaca 3960
gtaaaaaggc cgcgttgctg gcgttttccg ctgttccgac actataaaga taccaggcgt 4020
aaaatcgacg ctcaagtcag aggtggcgaa acccgacagg cctgcccgtt accggatacc 4080
ttccccctgg aagctccctc gtgcgctctc cgcttccgac tagctcacgc tgtaggatct 4140
tgtccgcctt tctcccttcg ggaagcgtgg cgttttctca cctgcccgtt accggatacc 4200
tcagttcggg gtaggtcgtt cgctccaagc tgggctgtgt gcacgaaccc cccgttcagc 4260
ccgacgcgtg gccttatcc ggtaactatc gtcttgagtc caacccggta agacacgact 4320
tatcgccact ggcagcagcc actggtaaca ggattagcag agcgaggatg gtaggcgggtg 4380
ctacagagtt cttgaagtgg tggcctaact acggctacac tagaaggaca gtatttggtg 4440
tctgcgctct gctgaagcca gttaccttcg gaaaaagagt tggtagctct tgatccggca 4500
aacaaccac cgtggtagc ggtggtttt ttgttgcaa gcagcagatt acgcgcagaa 4560
aaaaaggatc tcaagaagat cctttgatct tttctacggg gtctgacgct cagtggaaacg 4620
aaaactcacg ttaagggatt ttggtcatga gattatcaaa aaggatcttc acctagatcc 4680
ttttaaatga aaaatgaagt tttaaatcaa tctaaagtat atatgagtaa acttggtctg 4740
acagttacca atgcttaatc agtgaggcac ctatctcagc gatctgtcta tttcgttcat 4800
ccatagttgc ctgactcccc gtctgttaga taactacgat acgggagggc ttaccatctg 4860
gccccagtgc tgcaatgata cgcgagacc cacgctcacc ggctccagat ttatcagcaa 4920
taaaccagcc agccggaagg gccgagcgca gaagtggccc tgcaacttta tccgcctcca 4980
tccagtcctat taattgttgc cgggaagcta gagtaagtag ttcgccagtt aatagtttgc 5040
gcaacgttgt tgccattgct gcaggcatcg tgggtgtcacg ctgcgtcttt ggtatggctt 5100
cattcagctc cggttcccaa cgatcaaggc gagttacatg atcccccatg ttgtgcaaaa 5160
aagcggttag ctcccttcgtt ttgtcagaag taagttggcc gcagtgttat 5220
cactcatggt tatggcagca ctgcataatt ctcttactgt catgccatcc gtaagatgct 5280
tttctgtgac tggtagtac tcaaccaagt cattctgaga atagtgatg cggcgaccga 5340
gttgctcttg cccggcgctc acacgggata ataccgcgcc acatagcaga actttaaaag 5400
tgctcatcat tggaaaacgt tcttcggggc gaaaactctc aaggatctta ccgctgttga 5460
gatccagttc gatgtaaccc actcgtgcac ccaactgatc ttcagcatct tttactttca 5520
ccagcgtttc tgggtgagca aaaacaggaa ggcaaaaatgc cgcaaaaaag ggaataaggg 5580
cgacacggaa atgttgaaata ctcatactct tcctttttca atattattga agcatttatc 5640
agggttattg tctcatgagc ggatacatat ttgaaatgtat ttagaaaaat aaacaaatag 5700
gggttccgcg cacatttccc cgaaaagtgc cacttgacgt ctaagaaacc attattatca 5760
tgacattaac ctataaaaat aggcgtatca cgaggccctt tcgtcttcaa g 5811

```

<210> 3
 <211> 2005
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: vhm41

```

<400> 3
agtagaaaca aggggtatttt tctttaccta gctaggcctg cgcgcaatta accctcacta 60
aagggaaaca aagctggagc tccaccgcgg tggcggccgc tctagcatat gtttttcgtc 120
tcagccaatc cctctagcat atgtttttcg tctcagccaa tccctctaga agcttcgtac 180
gcatgcaagc tttaaatgca tatagtgcac cgcatgtttc cgttcttcac acatatgaaa 240
acaaggccca ttgcaatggc aagaagcaaa aagcatgatg ccccgaagct aaaccaaagt 300
atcacatctt tgtagccact actcaatttg actgggtcaa tttgtattct attttgcac 360
gcttcttctc tgtatttgct gtgatcataa gtattgttcc gttatgtagc catacaatca 420
tcgtcacatt tatgaaaaat ttcaaagcaa ccagtgccat cctcttcagc attttccctt 480
aattgttttc tcaactcgctc atacagcttg ttcattctctg aatcagccaa atcaatagtg 540
tgctggtttt ccattgcccac aagaagttca gcattgtaag accatacttc tgtgatggag 600
tctttgggtc agttaattaa attgccaatc tgctttttcca cttcagtgaa ttcattatct 660
attagctcaa attgctggtt ggtttttcta atgagcttat cttacttctc gggttatctga 720
tcaattgccg attgggtgct tttgtagtct gctgcagttc cttctccttg tgcattctga 780
tgccctgaaac cgtaccaccc gtcgaccaga ctttcccaac cattttcaat aaaccctgct 840

```

~7048421

atagcaccaa	acaggcctct	ttttttcctt	tttttgaag	gttcgggaac	gttcttcac	900
ccagttgcca	ataataaact	ttcctgtttt	acatatcttg	ggcatttgcc	aactgctctg	960
ctatttatgt	tttgaaaagg	caatctgctt	gttatagctc	ctccactgtg	gtagcattcc	1020
ccttcgcaat	tagcatcaac	ctgcacatcg	ctctggatcc	ccatggactt	ttccctcaag	1080
aagctggcac	gatttgagc	tatgaaagcc	ccattgaaac	taaaagtaac	tgtatcattg	1140
ggatccaaga	tcaaccaatg	aaaatcaatc	cgctccggacc	ggccatttat	ctgcggtcgt	1200
gttcctggac	tcggcacaaa	agattgatga	tatttggaaac	tcccgaactgt	tatcagttta	1260
tttccactcc	catatagttt	ggctgtgtcg	gtggtgatc	ctgaatggtg	gattccccag	1320
actatcagag	ctgattctct	ccctgtgttt	ttgtatgatt	ttgtcatttg	tgggaaagaa	1380
gcattgtctg	tatttgacag	gagccactcc	atttctgcat	agaatgaaga	ccctgatctt	1440
ctacatgcac	tagttgttcc	gttggtcctt	attccactat	atgtgaatcc	cattgtttct	1500
ttgtcaatcc	caactgatcc	tctgaggatt	tgtcgcaatg	cctcttcatt	aacaaacttc	1560
cccgggtaac	aaacatcatt	tccttctcgt	ctctcgatta	ttagatcagc	tgaaaattct	1620
agaaattggt	cgcattgagg	tgggtccggt	atgggtcccta	acagtccgca	ttggccaaga	1680
tcagtgggtc	ttttcccttt	tgagcaaatt	ttggggatgt	ttgtccgctc	cactgtttcc	1740
gttgcatgga	caacttctac	tcctctctca	gtgagtgtgt	ttactttggt	gccatttgat	1800
acagcatgat	gtccaagaca	aattttgtct	gcatttgtgg	ggatgactgc	cgcaagggcg	1860
aaaaccagga	tttgagtgtt	cattttggt	cctacaatat	gttttctgct	tcagccaatc	1920
cctggtacaa	tatgtttttc	gtctcagcca	atcctggtac	gatgtggatg	tcactcagtg	1980
agtgattatc	taccctgctt	ttgct				2005

<210> 4

<211> 1146

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: vHM81

<400> 4

agtagaaaca	aggggtatttt	tctttaccta	gctaggcctg	cgcgcaatta	accctcacta	60
aagggaacaa	aagctggagc	tccaccgcgg	tggcggccgc	tctagcatat	gtttttcgtc	120
tcagccaatc	cctctagcat	atgtttttcg	tctcagccaa	ttccctctaga	agcttcgtac	180
gcatgcttaa	ataagctgaa	acgagaaagt	tcttatctct	tgctccactt	caagcggtag	240
ttgtaaggct	tgataaaatg	ttatttggtc	aaaactattc	tctgttatct	tcaatctatg	300
tctcacttct	tcaattaacc	atcttatttc	ttcaaatctc	tgactcaatt	gttctcgcca	360
ttttccgttt	ctgcttttga	gggagtggag	gtcccccatt	ctcattactg	cttctccaag	420
cgaatctctg	tatagtttca	gagactcgaa	ctgtgttatc	attccattca	agtcctccga	480
tgaggacccc	aattgcattt	ttgacatcct	catcagtatg	tcctggaaga	gaaggcaatg	540
gtgaaatttc	gccgacaatt	gtcctctcat	cggttaaagc	ccttaatagt	atgagagttt	600
ccagccgatc	gaaaatcaca	ctgaagtgtg	ctttcagtat	gatgttcttc	cccatgatcg	660
cctggtccat	tctgatgcaa	agggagcctg	ccactttctg	tttgggcatg	agcatgaacc	720
agtcctctga	catctcttca	agagtcatgt	cagttaggt	gcgtgtagca	ggtacagagg	780
caatgggtcat	tttaagtgcc	tcacgcgatt	cgctctccag	aatccgctcc	actatctgct	840
ttccaacacg	agtagctgtg	tcgatgtcca	gaccaagagt	gctgcctctt	ccccctcagg	900
acttctgatc	tcggcgaagt	cgggtcaagga	atggggcatc	acccatttct	tgggtctgcaa	960
atcggttgcg	gacatgccaa	agaaagcagt	ctacctgaaa	gcttgacaca	gtgttggaat	1020
ccattatggt	acctacaata	tgtttttcgt	ctcagccaat	ccctgggtaca	atatgttttt	1080
cgtctcagcc	aatcctggta	cgatgtggat	gtcactcagt	gatgtgattat	ctaccctgct	1140
tttgct						1146

<210> 5

<211> 5860

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: pAM424

<400> 5

catcgattgg	ctgactgatg	agtccgtgag	gacgaaacga	aaaacatatt	gtagagctcg	60
------------	------------	------------	------------	------------	------------	----

~7048421

aattcatcga	aatgaccgac	caagcgacgc	ccaacctgcc	atcacgagat	ttcgattcca	120
ccgcccgtt	ctatgaaagg	ttgggcttcg	gaatcgtttt	ccgggacgcc	ggctggatga	180
tcctccagcg	cggggatctc	atgctggagt	tcttcgccc	ccccgggctc	gatccccctc	240
cgagttgggt	cagctgctgc	ctgaggctgg	acgacctcgc	ggagttctac	cggcagtgca	300
aatccgctcg	catccaggaa	accagcagcg	gctatccgcg	catccatgcc	cccgaactgc	360
aggagtgggg	aggcacgatg	gccgctttgg	tcccggatct	ttgtgaagga	accttacttc	420
tgtggtgtga	cataattgga	caaactacct	acagagattt	aaagctctaa	ggtaaataata	480
aaatttttaa	gtgtataatg	tgttaaacta	ctgattctaa	ttgtttgtgt	atttttagatt	540
ccaacctatg	gaactgatga	atgggagcag	tggtggaatg	cctttaatga	ggaaaacctg	600
ttttgctcag	aagaaatgcc	atctagtgtat	gatgaggcta	ctgctgactc	tcaacattct	660
actcctccaa	aaaagaagag	aaaggtagaa	gaccccaagg	actttccttc	agaattgcta	720
agttttttga	gtcatgctgt	gtttagtta	agaactcttg	cttgctttgc	tatttacacc	780
acaaaggaaa	aagctgcact	gctatacaag	aaaattatgg	aaaaatattc	tgtaaccttt	840
ataagtaggc	ataacagtta	taatcataac	atactgtttt	ttcttactcc	acacaggcat	900
agagtgtctg	ctattaataa	ctatgctcaa	aaattgtgta	ccttttagctt	tttaatttgt	960
aaaggggtta	ataaggaata	tttgatgtat	agtgccttga	ctagagatca	taatcagcca	1020
taccacattt	gtagaggttt	tacttgcttt	aaaaaacctc	ccacacctcc	ccctgaacct	1080
gaaacataaa	atgaatgcaa	ttgttgtgtg	taacttgttt	attgcagctt	ataatgggta	1140
caaataaaagc	aatagcatca	caaatttcac	aaataaagca	tttttttcac	tgcattctag	1200
ttgtggtttg	tccaaactca	tcaatgtatc	ttatcatgtc	tggaatccca	ggaagctcct	1260
ctgtgtcctc	ataaacctca	acctcctcta	cttgagagga	cattccaatc	ataggctgcc	1320
catccacctt	ctgtgtcctc	ctgttaatta	ggctacttaa	caaaaaggaa	attgggtagg	1380
ggtttttcac	agaccgcttt	ctaagggtaa	ttttaaaata	tctgggaagt	cccttccact	1440
gctgtgttcc	agaagtgttg	gtaaacagcc	cacaaatgtc	aacagcagaa	acatacaagc	1500
tgtagctttt	gcacaagggc	ccaacacctt	gctcatcaag	aagcactgtg	gttgctgtgt	1560
tagtaatgtg	caaaacagga	ggcacatttt	ccccacctgt	gtaggttcca	aaatatctag	1620
tgttttcatt	tttacttgga	tcaggaacct	agcactccac	tggaataagca	ttatccttat	1680
ccaaaacagc	cttgtgggtca	gtgttcatct	gctgactgtc	aactgtagca	ttttttgggg	1740
ttacagtttg	agcaggatat	ttggctcctgt	agtttgctaa	cacaccctgc	agctccaaag	1800
gttccccacc	aacagcaaaa	aaatgaaaat	ttgaccttg	aatgggtttt	ccagcaccat	1860
tttcatgagt	tttttgtgtc	cctgaatgca	agtttaacat	agcagttacc	ccaataacct	1920
cagttttaac	agtaacagct	tcccacatca	aaatatttcc	acaggttaag	tcctcattta	1980
aattaggcaa	aggaattctt	gaagacgaaa	gggcctcgtg	atacgcttat	ttttataggt	2040
taatgtcatg	ataataatgg	tttcttagac	gtcaggtggc	acttttcggg	gaaatgtgag	2100
cggaacccct	atttgtttat	ttttctaaat	acattcaaat	atgtatccgc	tcattgagaca	2160
ataaccctga	taaattgctt	aataatattg	aaaaagggaag	agtatgagta	ttcaacattt	2220
ccgtgtcgcc	cttatttccct	tttttgcggc	attttgctt	cctgtttttg	ctcaccacga	2280
aacgctggtg	aaagtaaaaag	atgctgaaga	tcagttgggt	gcacgagtgg	gttacatcga	2340
actggatctc	aacagcggta	agatccttga	gagttttcgc	cccgaagaac	gttttccaat	2400
gatgagcact	tttaaagtgc	tgctatgtgg	cgcggtatta	tcccgtgttg	acgccgggca	2460
agagcaactc	ggtcgcccga	tacactattc	tcagaatgac	ttggttgagt	actcaccagt	2520
cacagaaaag	catcttacgg	atggcatgac	agtaagagaa	ttatgcagtg	ctgccataac	2580
catgagtgat	aacactgcgg	ccaacttact	tctgacaacg	atcggaggac	cgaaggagct	2640
aaccgctttt	ttgcacaaca	tgggggatca	tgtaactcgc	cttgatcggt	gggaaccgga	2700
gctgaatgaa	gccataccaa	acgacgagcg	tgacaccacg	atgcctgcag	caatggcaac	2760
aacgtttcgc	aaactattaa	ctggcgaaat	acttactcta	gcttcccggc	aacaattaat	2820
agactggatg	gaggcgggata	aagttgcagg	accacttctg	cgctcgggcc	ttccggctgg	2880
ctggttttatt	gctgataaat	ctggagccgg	tgagcgtggg	tctcgcggtg	tcattgcagc	2940
actggggcca	gatggtaagc	cctcccgtat	cgtagttatc	tacacgcagc	ggagtcagcc	3000
aactatggat	gaacgaaata	gacagatcgc	tgagataggt	gcctcactga	tttaagcattg	3060
gtaactgtca	gaccaagtgt	actcatatat	acttttagatt	gatttaaaac	ttcattttta	3120
atttaaaaagg	atctaggtga	agatcctttt	tgataatctc	atgaccaaaa	ttccttaacg	3180
tgagttttcg	ttccactgag	gttcagacccc	cgtagaaaag	atcaaaggat	cttcttgaga	3240
tccttttttt	ctgcgcgtaa	tctgtgcttt	gcaaacaata	aaaccaccgc	taccagcggt	3300
ggtttgggtt	ccggatcaag	agctaccaac	tctttttccg	aaggtaactg	gcttcagcag	3360
agcgcagata	ccaaatactg	tccttctagt	gtagccgtag	ttaggccacc	acttcaagaa	3420
ctctgtagca	ccgcctacat	acctcgctct	gctaattcctg	ttaccagtgg	ctgctgccag	3480
tgggcgataag	tcgtgtctta	ccgggttgga	ctcaagacga	tagttaccgg	ataaggcgca	3540
gcgggtcggg	tgaacggggg	gttcgtgcac	acagcccagc	ttggagcgaa	cgacctacac	3600
cgaactgaga	tacctacagc	gtgagctatg	agaaagcgcc	acgcttcccg	aaggagagaa	3660
ggcggacagg	tatccggtaa	gcggcagggg	cggaacagga	gagcgcacga	gggagcttcc	3720
agggggaaac	gcctggtatc	tttatagctc	tgctcggttt	cgccacctct	gacttgagcg	3780
tcgatttttg	tgatgctcgt	cagggggggc	gagcctatgg	aaaaacgcca	gcaacgcggc	3840

~7048421

```

ctttttacgg ttcctggcct tttgctggcc ttttgctcac atgttctttc ctgcgttatc 3900
ccctgattct gtggataacc gtattaccgc ctttgagtga gctgataccg ctgcgccgag 3960
ccgaacgacc gagcgacgag agtcagtgag cgaggaagcg gaagagcgcc tgatgcgta 4020
ttttctcctt acgcatctgt gcggtatttc acaccgcata tggcgactc tcagtacaat 4080
ctgctctgat gccgcatagt taagccagta tacactccgc ttcgctacg tgactgggtc 4140
atggctgcgc cccgacaccc gccaacaccc gctgacgcgc cctgacgggc ttgtctgctc 4200
ccggcatccg cttacagaca agctgtgacc gctctcggga gctgcatgtg tcagagggtt 4260
tcaccgtcat caccgaaacg cgcgaggcag ctgtggaatg tgtgtcagtt aggggtgtga 4320
aagtccccag gctccccagc aggcagaagt atgcaaagca tgcattctaa ttagtcagca 4380
accaggtgtg gaaagtcccc aggtcctcca gcaggcagaa gtatgcaaag catgcatctc 4440
aattagtcag caaccatagt cccgccccta ctaatttttt ttatttatgc agaggccgag 4500
agttccgccc atttctccgc ccatggctga tagtgaggag gcttttttgg aggcctaggc 4560
gccgcctcgg cctctgagct attccagaag actcaggcgc caagggtcgc taaaggaaagc 4620
ttttgcaaaa agcttcacgc tgccgcaagc actcaggcgc ccggtgaaat gtcagctact 4740
ggaacacgta gaaagccagt ccgcagaaac ggtgctgacc ccaagagaaa gcaggtagct 4800
gggctatctg gacaagggaa aacgcaagcg tatggacagc aagcgaaccg gaattgccag 4860
ttacatggcg atagctagac tgggcgggtt cctgcaaagt aaactggatg gctttcttgc 4920
ctggggcgcc ctctggttaag gttgggaagc gatctgatca agagacagga tgaggatcgt 4980
cgccaaggat ctgatggcgc aggggatcaa caggttctcc ggccgcttgg gtggagaggc 5040
ttcgcatgat tgaacaagat ggattgcacg caggttctcc tgatgccgcc gtgttccggc 5100
tattcggtca tgactgggca caacagacaa ctggtgctc tgcgtccggt gccctgaatg 5160
tgtcagcgca gggcgccccg gttctttttg tcaagaccga cctgtccggt ccttgcgcag 5220
aactgcagga cgaggcagcg cggctatcgt ggctggccac gacgggcgtt ccttgcgcag 5280
ctgtgctcga cgttgctact gaagcgggaa gggactggct gctattgggc gaagtgcgg 5340
ggcaggatct cctgtcatct cacttgctc ctgccgagaa agtatccatc atggctgatg 5400
caatgcggcg gctgcatacg cttgatccgg aagccggtct tgtcgatcag caagcgaac 5460
atcgcatcga gcgagcacgt actcggatgg aactgttcgc caggctcaag gatgatctgg 5520
acgaagagca tcaggggctc gcgccagccg aactgttcgc caggctcaag gcgcgcatg 5580
ccgacggcga ggaatctgct gtgacccatg gcgatgcctg cttgccgaat atcatggtg 5640
aaaatggccg cttttctgga ttcatcgact gtggccggct ggggtgtggc gaccgctatc 5700
aggacatagc gttggctacc cgtgatattg ctgaagagct tggcgcgaa tgggctgacc 5760
gcttctcgt gctttacggt atcgccgctc ccgattcgca gcgcatcgcc ttctatcgcc 5820
ttcttgacga gttcttctga gcgggactct ggggttcgaa tcctaccagg gattggctga 5860
ctgatgagtc cgtgaggacg aaacgaaaaa catatggtac

```

<210> 6

<211> 4610

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PHL2507

<400> 6

```

gaggcatttc agtcagttgc tcaaggtacc aaaatgaaca ctcaaatcct ggttttcgcc 60
cttgccggcag tcatccccac aaatgcagac aaaatttgtc ttggacatca tgcgttatca 120
aatggcacca aagtaaaccac actcactgag agaggagtag aagttgtcaa tgcaacggaa 180
acagtggagc ggacaaacat ccccaaaatt tgctcaaaag ggaagaagac cactgatctt 240
ggccaatgcg gactgttagg gaccattacc ggaccacctc aatgcgacca atttctagaa 300
ttttcagctg atctaataat cgagagacga gaaggaaatg atgtttgtta cccgggggaa 360
tttgtaatg aagaggcatt gcgacaaatc ctcagaggat cagggtggat tgacaaagaa 420
acaatgggat tcacatatag tggaaataagg accaacggaa caactagtgc atgtagaaga 480
tcagggtctt cattctatgc agaaatggag tggctcctgt caatacaga caatgcttct 540
ttcccacaaa tgacaaaatc atacaaaaac acaggagag aatcagctct gatagtctgg 600
ggaatccacc attcaggatc aaccaccgaa cagaccaaac tatatgggag tggaaataaa 660
ctgataacag tcgggagttc caaatatcat caatcttttg tgccgagtc aggaacacga 720
ccgcagataa atggccggct cggacggatt gattttcatt ggttgatctt ggatcccaat 780
gatacagtta cttttagttt caatggggct ttcatagctc caaatcgtgc cagcttcttg 840
aggggaaagt ccattgggat ccagagcgat gtgcagggtt atgctaattg cgaaggggaa 900
tgctaccaca gtggagggac tataacaagc agattgcctt ttcaaaacat aaatagcaga 960
cgagttggca aatgcccaag atatgtaaaa caggaaagtt tattattggc aactgggatg 1020

```

~7048421

aagaacgttc	ccgaaccttc	caaaaaaagg	aaaaaaagag	gcctgtttgg	tgctatagca	1080
gggtttattg	aaaatggttg	ggaaggtctg	gtcgacgggt	ggtacggttt	caggcatcag	1140
aatgcacaag	gagaaggaac	tgcagcagac	tacaaaagca	cccaatcggc	aattgatcag	1200
ataaccggaa	agttaaatag	actcattaag	aaaaccaacc	agcaatttga	gctaataag	1260
aatgaattca	ctgaagtggg	aaagcagatt	ggcaattttaa	ttaactggac	caaagactcc	1320
atcacagaag	tatggtctta	caatgctgaa	cttcttgtgg	caatggaaaa	ccagcacact	1380
attgatttgg	ctgattcaga	gatgaacaag	ctgtatgagc	gagtgaggaa	acaattaagg	1440
gaaaatgctg	aagaggatgg	cactgggttg	tttgaaattt	ttcataaatg	tgacgatgat	1500
tgtatggcta	gtataaggaa	caatacttat	gatcacagca	aatacacaga	agaagcgatg	1560
caaaatagaa	tacaaattga	cccagtcaaa	ttgagtatgg	gctacaaaga	tgtgatactt	1620
tggttttagct	tcggggcatc	atgctttttg	cttcttgcca	ttgcaatggg	ccttgttttc	1680
atatgtgtga	agaacggaaa	catgcggtgc	actatttcta	tataggtttg	gaaaaaaaaca	1740
ccccctgttt	ctactcccc	ccaacttcgg	aggctcgacca	gtactccggg	cgaaactttg	1800
tttttttttt	ttcccccgat	gctggaggtc	gaccagatgt	ccgaaagtgt	ccccccccc	1860
ccccccccc	ggcgcggaac	ggcggggcca	ctctggactc	tttttttttt	tttttttttt	1920
ttttttgggg	atcgggcgct	agcttctgtt	ttggcggtatg	agagaagatt	ttcagcctga	1980
tacagattaa	atcagaacgc	agaagcggtc	tgataaaaaca	gaatttgcct	ggcgcgagta	2040
gcgcgggtgg	cccacctgac	cccatgccga	actcagaagt	gaaacgccgt	agcgccgatg	2100
gtagtgtggg	gtctccccat	gcgagagtag	ggaactgccca	ggcatcaaat	aaaacgaaag	2160
gctcagtcga	aagactgggc	ctttcgtttt	atctgtttgt	tgctcggtgaa	cgctctcctg	2220
agtaggacaa	atccgcgggg	agcggatttg	aacgttgcca	agcaacggcc	cggagggtgg	2280
cgggcaggac	gcccgcata	aactgccagg	catcaaatta	agcagaaggc	catcctgacg	2340
gatggccitt	ttgcgtttct	acaaactctt	ttgtttattt	ttctaaatac	attcaaatat	2400
gtatccgctc	atgagacaat	aaccttgata	aatgcttcaa	taatattgaa	aaaggaagag	2460
tatgagtatt	caacatttcc	gtgtcgccct	tattcccttt	tttgcgcat	tttgccttcc	2520
tgtttttgct	cacccagaaa	cgctgggtgaa	agtaaaagat	gctgaagatc	agttgggtgc	2580
acgagtgggt	tacatcgaac	tggtatctcaa	cagcggtaag	atccttgaga	gttttcgccc	2640
cgaagaacgt	tttccaatga	tgagcacttt	taaagttctg	ctatgtggcg	cggtattatc	2700
ccgtgttgac	gcccgggcaag	agcaactcgg	tcgccgcata	cactattctc	agaatgactt	2760
ggttgagtac	tcaccagtcg	cagaaaagca	tcttacggat	ggcatgacag	taagagaatt	2820
atgcagtgtc	gccataacca	tgagtataaa	cactgcggcc	aacttacttc	tgacaacgat	2880
cggaggaccg	aaggagctaa	ccgctttttt	gcacaacatg	gggatcatg	taactcgcct	2940
tgatcgttgg	gaaccggagc	tgaatgaagc	cataccaaac	gacgagcggt	acaccacgat	3000
gcctgtagca	atggcaacaa	cggtgcgcaa	actattaact	ggcgaactac	ttactctagc	3060
ttcccgcaaa	caattaatag	actggatgga	ggcggtataaa	gttgacaggac	cacttctgct	3120
ctcggccctt	ccggctggct	ggtttattgc	tgataaatct	ggagccgggt	agcggtgggt	3180
tcgcggtatc	attgcagcac	tgggggccaga	tggtaagccc	tcccgtatcg	tagttatcta	3240
cacgacgggg	agtcaggcaa	ctatggatga	acgaaataga	cagatcgctg	agataggtgc	3300
ctcactgatt	aagcatttgg	aactgtcaga	ccaagtttac	tcatatatac	tttagattga	3360
tttaaaactt	catttttaat	ttaaaaggat	ctaggtgaag	atcctttttg	ataatctcat	3420
gaccaaatac	ccttaacgtg	agttttcggt	ccactgagcg	tcagaccccg	tagaaaaagat	3480
caaaggatct	tcttgagatc	ctttttttct	gcgcgtaatc	tgctgcttgc	aaacaaaaaa	3540
accaccgcta	ccagcgggtg	tttgtttgcc	ggatcaagag	ctaccaactc	tttttccgaa	3600
ggtaactggc	ttcagcagag	cgcagatacc	aaatactgtc	cttctagtgt	agccgtagtt	3660
aggccaccac	ttcaagaact	ctgtagcacc	gcctacatac	ctcgtctctg	taatcctgtt	3720
accagtggct	gctgccagtg	gcgataagtc	gtgtcttacc	gggttggact	caagacgata	3780
gttaccggat	aaggcgagc	ggtcgggctg	aacggggggg	tcgtgcacac	agcccagctt	3840
ggagcgaaac	acctacaccg	aactgagata	cctacagcgt	gagctatgag	aaagcgccac	3900
gcttcccga	gggagaaaag	cggacaggta	tccggttaagc	ggcagggtcg	gaacaggaga	3960
gcgcacgagg	gagcttccag	ggggaaacgc	ctggtatctt	tatagtcctg	tcgggttttcg	4020
ccacctctga	cttgagcgct	gatttttgtg	atgctcgtca	ggggggcgga	gcctatggaa	4080
aaacgccagc	aacgcggcct	ttttacgggt	cctggccttt	tgctggcctt	ttgctcacat	4140
gttctttcct	gcgttatccc	ctgattcatt	aatgcaggtc	acgatccttt	ctggcgagtc	4200
cccgtgcgga	gtcggagagc	gtccctgag	gcgctgcggc	ccgagagggt	gcgcctggcc	4260
ggccttcggg	ccctcggtg	tcccggctcg	aggagggggc	ggccgaaat	gcttccggct	4320
cccgtcttgg	agacacgggc	cggccccctg	cgtgtggcac	gggcggccgg	gagggcgctc	4380
ccggccccgg	gctgtctccc	cgtgtgtcct	ggggttgacc	agaggggccc	gggcgctccc	4440
tgtgtggctg	cgatgggtgg	gtttttgggg	acagggtgtc	gtgtccgtgt	cgcgcgctgc	4500
ctgggcccgc	ggcgtggtcg	gtgacgcgac	ctcccggccc	cgggggaggt	atatctttcg	4560
ctccgagtcg	gcattttggg	ccgcccgggt	attagtagaa	acaggggtac		4610

~7048421

<211> 3558

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PHL2583

<400> 7

tattagtaga	aacaggggtat	tttttattct	agtacattac	gccccgccct	gccactcatc	60
gcagtactgt	tgtaattcat	taagcattct	gccgacatgg	aagccatcac	agacggcatg	120
atgaacctga	atcgccagcg	gcatcagcac	cttgctgcct	tgcgtataat	atttgcccat	180
gggtgaaaacg	ggggcgaaga	agttgtccat	attggccacg	tttaaataca	aactgggtgaa	240
actcaccag	ggattggctg	agacgaaaaa	catattctca	ataaacacctt	tagggaaata	300
ggccagggtt	tcaccgtaac	acgccacatc	ttgcgaatat	atgtgtagaa	actgccggaa	360
atcgctcggtg	tattcactcc	agagcgatga	aaacgtttca	gtttgctcat	ggaaaacggt	420
gtaacaagg	tgaacactat	cccatatcac	cagctcaccg	tctttcattg	ccatacggaa	480
ttccggatga	gcattcatca	ggcgggcaag	aatgtgaata	aaggccggat	aaaacttggtg	540
cttatttttc	tttacggctt	ttaaaaaggc	cgtaatatcc	agctgaacgg	tctggttata	600
ggtacattga	gcaactgact	gaaatgcctc	aaaatgttct	ttacgatgcc	attgggatat	660
atcaacggtg	gtatatccag	tgattttttt	ctccatgatt	atggccatta	cccttgtttc	720
tactcccccc	caacttcgga	ggtcgaccag	tactccgggc	gaaactttgt	tttttttttt	780
tcccccgatg	ctggagggtcg	accagatgtc	cgaaagtgtc	cccccccccc	cccccccccg	840
gcgcggaacg	gcggggccac	tctggactct	tttttttttt	tttttttttt	tttttgggga	900
tcggccgcta	gcttctgttt	tgccggatga	gagaagattt	tcagcctgat	acagattaaa	960
tcagaacgca	gaagcggctt	gataaaacag	aatttgccctg	gcggcagtag	cgcggtgggtc	1020
ccacctgacc	ccatgccgaa	ctcagaagtg	aaacgccgta	gcgccgatgg	tagtgtgggg	1080
tctccccatg	cgagagtagg	gaactgccag	gcatcaaata	aaacgaaagg	ctcagtcgaa	1140
agactgggccc	tttcgtttta	tctgtttgtt	gtcgggtgaac	gctctcctga	gtaggacaaa	1200
tccgcgggga	gcggatttga	acgttgcgaa	gcaacggccc	ggagggtggc	gggcaggacg	1260
cccgcataaa	actgccaggc	atcaaattaa	gcagaaggcc	atcctgacgg	atggcctttt	1320
tgcgtttcta	caaactcttt	tgtttttttt	tctaaatata	ttcaaataatg	tatccgctca	1380
tgagacaata	accctgataa	atgcttcaat	aattattgaaa	aagggaagagt	atgagtattc	1440
aacattttccg	tgctgccttt	attccctttt	ttgcggcatt	ttgccttctc	gtttttgctc	1500
acccagaaaac	gctggtgaaa	gtaaaagatg	ctgaagatca	gttgggtgca	cgagtggggt	1560
acatcgaact	ggaatctcaac	agcggtaaga	tccttgagag	ttttcgcccc	gaagaacggt	1620
ttccaatgat	gagcactttt	aaagtctctg	tatgtggcgc	ggtattatcc	cgtgttgacg	1680
ccgggcaaga	gcaactcggg	cgccgcatac	actatttcta	gaatgacttg	gttgagtact	1740
caccagtcac	agaaaagcat	cttacggatg	actatttcta	aagagaatta	tgcatgtctg	1800
ccataaccat	gagtgataac	actgcggcca	acttacttct	gacaacgatc	ggaggaccga	1860
aggagcctaac	cgcttttttg	cacaacatgg	gggatcatgt	aactcgcctt	gatcgttggg	1920
aaccggagct	gaatgaagcc	ataccaaaacg	acgagcgtga	caccacgatg	cctgtagcaa	1980
tggcaacaac	gttgcgcaaa	ctattaactg	gcgaactact	tactctagct	tccgggcaac	2040
aattaataga	ctggatggag	gcggataaag	ttgcaggacc	acttctgcgc	tcggcccttc	2100
cggtctggctg	gtttattgct	gataaatctg	gagccgggtga	gcgtgggtct	cgcggtatca	2160
ttgcagcact	ggggccagat	ggtaagccct	cccgtatcgt	agttatctac	acgacgggga	2220
gtcaggcaac	tatggatgaa	cgaaatagac	agatcgctga	gatagggtgc	tcactgatta	2280
agcattggta	actgtcagac	caagtttact	catatatact	ttagattgat	ttaaaacttc	2340
atttttaatt	taaaaaggatc	taggtgaaga	tcctttttga	taatctcatg	accaaatacc	2400
cttaacgtga	gttttcgttc	cactgagcgt	cagacccctg	agaaaagatc	aaaggatctt	2460
cttgagatcc	tttttttctg	cgcgtaattc	gctgcttgca	aacaaaaaaa	ccaccgctac	2520
cagcggtggg	ttgtttgccg	gatcaagagc	taccaactct	ttttccgaag	gtaactggct	2580
tcagcagagc	gcagatacca	aatactgtcc	ttctagtgtg	gccgtagtta	ggccaccact	2640
tcaagaactc	tgtagcaccg	cctacatacc	tcgctctgct	aatcctgtta	ccagtggctg	2700
ctgccagtg	cgataagtcg	tgtcttaccg	ggttggactc	aagacgatag	ttaccggata	2760
agggcgacg	gtcgggctga	acgggggggt	cggtcacaca	gcccagcttg	gagcgaacga	2820
cctacaccga	actgagatac	ctacagcgtg	agctatgaga	aagcgccacg	cttcccgaag	2880
ggagaaaagg	ggacaggtat	ccggtaaagc	gcagggtcgg	aacaggagag	cgcacgaggg	2940
agcttccagg	gggaaacgcc	tggtatcttt	atagtcctgt	cggttttcgc	cacctctgac	3000
ttgagcgtcg	atttttgtga	tgctcgtcag	gggggcccgg	cctatggaaa	aacgccagca	3060
acgggccttt	tttacggttc	ctggcccttt	gctggccttt	tgctcacatg	ttctttcctg	3120
cgttatcccc	tgattcatta	atgcaggtca	cgatcctttc	tggcgagtc	ccgtgcggag	3180
tcggagagcg	ctccctgagc	gcgtgcggcc	cgagaggtcg	cgcctggccg	gccttcggtc	3240
cctcgtgtgt	cccggtcgta	ggagggggccg	gccgaaaatg	cttccggctc	ccgctctgga	3300

~7048421

```

gacacggggc ggccccctgc gtgtggcacg ggcgggcggg agggcgctccc cggccccggcg 3360
ctgctcccg cgtgtgtcctg ggggttgacca gagggccccc ggcgctccgt gtgtggctgc 3420
gatgggtggcg tttttgggga cagggtgtccg tgtccgtgtc gcgctgcgcc tggggccggcg 3480
gcgtggctcg tgacgcgacc tcccggcccc gggggaggta tatctttcgc tccgagtcgg 3540
cattttgggc cgccgggt

```

<210> 8

<211> 4343

<212> DNA

<213> Artificial sequence

<220>

<223> Description of Artificial Sequence: pHL2989

<400> 8

```

ctttctggcg agtccccgtg cggagtcgga gagcgctccc tgagcgctg cggccccgaga 60
ggtcgcgcct ggccggcctt cgggccctcg tgtgtcccgg tcgtaggagg ggccggccga 120
aaatgcttcc ggctcccgct ctggagacac gggccggccc cctgcgtgtg gcacgggccc 180
ccgggagggc gtccccggcc cggcgctgct cccgcgtgtg tcctgggggt gaccagaggg 240
ccccgggcgc tccgtgtgtg gctgcgatgg tggcgttttt ggggacagg gtccgtgtcc 300
gtgtcgcgcg tcgcctgggc cggcgcgctg gtcggtgacg cgacctccc gccccggggg 360
aggtatatct ttcgctccga gtcggcattt tggcgcccg ggttattagt agaaacaggg 420
tatttttat actagtaagc tcgaaggagt ccaccatgag taaaggagaa gaacttttca 480
ctggagtgt cccaattctt gttgaattag atggtgatgt taatgggcac aaattttctg 540
tcagtggaga ggggtgaagg gatgcaacat acggaaaact tacccttaa tttatttgca 600
ctactgaaa actacctgtt ccatggccaa cacttgctac tctttcact tatggtgttc 660
aatgctttt aagataccca gatcatatga aacagcatga cttttcaag agtgccatgc 720
ccgaagggtta tgtacaggaa agaactatat ttttcaaaga tgacgggaac tacaagacac 780
gtgctgaagt caagtgtgaa ggtgataccc ttgttaatag aatcgagtta aaagggtattg 840
attttaaga agatggaaac attcttggac acaaattgga atacaactat aactcacaca 900
atgtatacat catggctgac aagcagaaga acggaatcaa ggccaacttc aagacccgcc 960
acaacatcga ggacggcgcc gtgcagctgg ccgaccacta ccagcagaac accccaattg 1020
aagatcccaa tgccttttta ccagacaacc attacctgtc cacacaatct gccctttcga 1080
tgcatggccc tgccttttta gaccacatgg tccttcttga gtttgtaaca gctgctggga 1140
ttacacatgg catggatgaa ctatacaagg gatcccatca ccatcaccat cactaagctc 1200
catggtctag atatctagta cattacgccc cgccctgcca ctcacgcag tactgttgta 1260

```

```

attcattaag cattctgccg acatggaagc catcacagac ggcagtgatga acctgaatcg 1320
ccagcggcat cagcaccttg tcgccttgcg tataataatt gcccatggtg aaaacggggg 1380
cgaagaagtt gtccatattg gccacgttta aatcaaaact ggtgaaactc acccagggat 1440
tggcactcac aaagaacatg ttctcgatga atcctttagg gaagtaggcc aggttttcac 1500
cgtaacacgc cacatcttgc gaatatatgt gtagaaactg ccggaactcg tcgtggtatt 1560
cactccagag cgatgaaaac gtttcagttt gctcatggaa aacggtgtaa caagggtgaa 1620
cactatccca tatcaccagc tcaccgtctt tcattgccat acggaattcc ggatgagcat 1680
tcacagggcg ggcaagaatg tgaataaagg ccgataaaa cttgtgctta tttttcttta 1740
cggctcttaa aaaggccgta atatccagct gaacggtctg gttataggtg cattgagcaa 1800
ctgactgaaa tgcctcaaaa tgttctttac gatgccattg ggatataatca acggtggtat 1860
atccagtgat ttttttctcc atgattatgc aaaaaatacc cttgtttcta ctcccccca 1920
acttcggagg tcgaccagta ctccgggcga aactttgttt tttttttttt ccccgatgct 1980
ggaggtcgac cagatgtccg aaagtgtccc ccccccccc ccccccggc gcggaacggc 2040
ggggccactc tggactcttt tttttttttt tttttttttt tttggggatc ggccgctagc 2100
ttctgttttg gcggatgaga gaagattttc agcctgatac agattaaatc agaacgcaga 2160
agcggctcga taaaacagaa ttgacctggc ggcagtagcg cgggtgtccc acctgacccc 2220
atgccgaact cagaagtga acgccgtagc gccgatggta gtgtggggtc tcccatgcg 2280
agagtaggga actgccaggc atcaataaaa acgaaaggct cagtcgaaag actgggcctt 2340
tcgttttatc tgtgtttgt cggatgaacgc tctcctgagt aggacaaatc cgccgggagc 2400
ggatttgaac gttgcgaagc aacggccccg aggggtggcg gcaggacgcc cgccataaac 2460
tgccaggcat caaatgaagc agaaggccat cctgacggat ggcctttttg cgtttctaca 2520
aactcttttg tttatttttc taaatacatt caaatatgta tccgctcatg agacaataac 2580
cctgataaat gcttcaataa tattgaaaaa ggaagagtat gagtattcaa catttccgtg 2640
tcgcccttat tccctttttt gcggcatttt gccttctgt ttttgctcac ccagaaacgc 2700
tggtgaaagt aaaagatgct gaagatcagt tgggtgcacg agtggtttac atcgaactgg 2760

```

~7048421

```

atctcaacag cggttaagatc cttgagagtt ttcgccccga agaacgtttt ccaatgatga 2820
gcacttttaa agttctgcta tttggtcggg tattatcccc tggtgacgcc gggcaagagc 2880
aaactcggctc ccgcatacac tattctcaga atgacttggg tgagtactca ccagtcacag 2940
aaaagcatct tacggatggc atgacagtaa gagaattatg cagtgtctgc ataaccatga 3000
gtgataacac tgcggccaac ttactttctga caacgatcgg aggaccgaag gagctaaccg 3060
cttttttgca caacatgggg gatcatgtaa ctgccttga tcgttgggaa ccggagctga 3120
atgaagccat accaaacgac gagcgtgaca ccacgatgcc tgtagcaatg gcaacaacgt 3180
tgcgcaaac attaaactggc gaactactta ctctagcttc ccggcaacaa ttaatagact 3240
ggatggaggc ggataaagtt gcaggaccac ttctgcgtc ggcccttccg gctggctggt 3300
ttattgctga taaatctgga gccgggtgagc gtgggtctcg cgggtatcatt gcagcactgg 3360
ggccagatgg taagccctcc cgtatcgtag ttatctacac gacggggagt caggcaacta 3420
tggatgaacg aaatagacag atcgtgaga taggtgcctc actgattaag cattggtaac 3480
tgtcagacca agtttactca tatatacttt agattgattt aaaacttcat ttttaattta 3540
aaaggatcta ggtgaagatc ctttttgata atctcatgac caaaatccct taacgtgagt 3600
tttcgttcca ctgagcgtca gaccccgtag aaaagatcaa aggatcttct tgagatcctt 3660
ttttctgcg cgtaatctgc tgcttgcaaa caaaaaaacc accgctacca gcggtggttt 3720
gtttgcggg tcaagagcta ccaactcttt ttccgaaggt aactggcttc agcagagcgc 3780
agataccaaa tactgtcctt ctagtgtagc cgtagttagg ccaccacttc aagaactctg 3840
tagcaccgcc taacacctc gctctgctaa tcctgttacc agtggctgct gccagtggcg 3900
ataagtcgtg tcttaccggg ttggactcaa gacgatagtt accggataag gcgcagcgg 3960
cgggctgaac ggggggttcg tgcacacagc ccagcttggg gcgccacgct tcccgaaggg agaaaagcgg 4020
tgagatacct acagcgtgag ctatgagaaa caggagagcg cacgagggag cttccagggg 4080
acaggtatcc ggtaagcggc aggggtcgaa ggtttcgcca cctctgactt gagcgtcgat 4140
gaaacgcctg gtatctttat agtcctgtcg ggtttcgcca cctctgactt gagcgtcgat 4200
ttttgtgatg ctctgcaggg gggcgaggcc tatggaaaaa cgccagcaac gcggcctttt 4260
tacggttctt ggccttttgc tggccttttg ctcacatggt ctttcttgcg ttatcccctg 4320
attcattaat gcaggtcacg atc

```

<210> 9

<211> 3888

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PHL1920

<400> 9

```

ccccaaaaaa aaaaaaaaaa aaaaaaaaaa agtccagagt ggccccgcgg ttccgcgcgg 60
gggggggggg ggggggggga cactttcggg catctggtcg acctccagca tcgggggaaa 120
aaaaaaaaaa aaagtttcgc ccggagtagt ggtcgacctc cgaagtggg ggggagtaga 180
aacagggtag ataactactc actgagtgcg atccacatcg cgagcgcgcg taatacgact 240
cactataggc cgaattgggt accgggcccc cctcgcaggt cgacggtatc gataagcttc 300
gacgagattt tcaggagcta aggaagctaa aatggagaaa aaaatcactg gatataccac 360
cgttgatata tcccaatggc atcgtaaaga acattttgag gcatttcagt cagttgtctc 420
atgtacctat aaccagaccg ttcagctgga tattacggcc tttttaaaga ccgtaaagaa 480
aaataagcac aagttttatc cggcctttat tcacattctt gcccgcctga tgaatgctca 540
tccggaattc cgtatggcaa tgaaagacgg tgagctgggt atatgggata gtgttcaccc 600
ttgttacacc gttttccatg agcaaaactg aacgttttca tcgctctgga gtgaatacca 660
cgacgatttc cggcagtttc tacacatata ttcgcaagat gtggcgtggt acggtgaaaa 720
cctggcctat ttccctaaag ggtttattga gaatatgttt ggccaatatg ttcgtctcag ccaatccctg 780
ggtgagtttc accagttttg atttaaactg ggccaatgag ctgatgccgc tgcaccttct tcgccccctg 840
tttcaccatg ggcaaatatt atacgcaagg atggcttcca tgctgcgcga atgcttaatg aattacaaca 960
ggttcacatc gccgtttgtg gctgggcagg gcggggcgta atttttttaa ggcagttatt ggtgccctta 1020
gtactgcgat gagtggcagg gctacgcctg aataagtgat aataagcggg tgaatggcag aaattcgtcg 1080
aacgcctggg gctacgcctg tcgaattcct gcagccccgg ggtaccacta gttctagagc ggccgccacc 1140
aagcttgata tccagctttt gttcccttta gtgaggggta attgcgcgca ggcctagcta 1200
gcgggtggagc ggttaaagaaa aatacccttg attcttctaa taaccggcg gcccataatg ccgactcgga 1260
ggtaaaagata tacctccccg ggggcccggg ggtcgcgtca cccgaccacg cgccggccca 1320
gcgaaagata gacacggaca cctgtcccca aaaacgccac catcgacggc gacacgggag 1380
ggcgacgcgc cctctggtca accccaggac acacgcggga gtagcgcggg gccggggacg 1440
cgccccgggc cgtctgtgca acacgcaggg ggcggggccc tgtctccaga gcgggagccg 1500
ccctcccggc cgccccgtgc acacgcaggg ggcggggccc

```

~7048421

gaagcatttt	cggccggccc	ctcctacgac	cgggacacac	gagggaccga	aggccggcca	1560
ggcgcgacct	ctcgggcccgc	acgcgcgctc	agggagcgct	ctccgactcc	gcacggggac	1620
tcgccagaaa	ggatcgtgac	ctgcattaat	gaatcagggg	ataacgcagg	aaagaacatg	1680
tgagcaaaag	gccagcaaaa	ggccaggaac	cgtaaaaagg	ccgcgttgct	ggcgtttttc	1740
cataggctcc	gcccccttga	cgagcatcac	aaaaatcgac	gctcaagtca	gaggtggcga	1800
aaaccgcagc	gactataaag	ataccaggcg	tttccccctg	gaagctccct	cgtgcgctct	1860
cctgttccga	ccctgcccgt	taccggatac	ctgtccgcct	ttctcccttc	gggaagcgtg	1920
gcgctttctc	atagctcagc	ctgtaggtat	ctcagttcgg	tgtaggtcgt	tcgctccaag	1980
ctgggctgtg	tgacgaacc	ccccgttcag	cccgcaccgt	gcgccttata	cggtaactat	2040
cgtcttgagt	ccaacccggt	aagacacgac	ttatcgccac	tgccagcagc	cactggtaac	2100
aggattagca	gagcgaggta	tgtaggcggt	gctacagagt	tcttgaagtg	gtggcctaac	2160
tacggctaca	ctagaaggac	agtatttggg	atctgcgctc	tgctgaagcc	agttaccttc	2220
ggaaaaagag	ttggtagctc	ttgatccggc	aaacaaacca	ccgctggtag	cgggtggttt	2280
tttgtttgca	agcagcagat	tacgcgcaga	aaaaaaggat	ctcaagaaga	tcctttgatc	2340
ttttctacgg	ggcttgacgc	tcagtggaaac	gaaaactcac	gttaagggat	tttggctatg	2400
agattatcaa	aaaggatctt	cacctagatc	cttttaaatt	aaaaatgaag	ttttaaatca	2460
atctaaagta	tatatgagta	aacttgggtc	gacagttacc	aatgcttaat	cagtgaaggca	2520
cctatctcag	cgatctgtct	atttcgttca	tccatagttg	cctgactccc	cgtcgtgtag	2580
ataactacga	tacgggaggg	cttaccatct	ggccccagtg	ctgcaatgat	accgcgagac	2640
ccacgctcac	cggctccaga	tttatcagca	ataaaccagc	cagccggaag	ggccgagcgc	2700
agaagtggtc	ctgcaacttt	atccgcctcc	atccagttca	ttaattgttg	ccgggaagct	2760
agagtaagta	gttcgccagt	taatagtgtg	cgcaacggtg	ttgccattgc	tacaggcatc	2820
gtggtgtcac	gctcgtcggt	tggtatggct	tcattcagct	ccggttccca	acgatcaagg	2880
cgagttacat	gatcccccat	gttggtgcaa	aaagcggtta	gctccttcgg	tcctccgatc	2940
gttgtcagaa	gtaagtggc	cgcagtgtta	tcactcatgg	ttatggcagc	actgcataat	3000
tctcttactg	tcatgccatc	cgtaagatgc	ttttctgtga	ctgggtgagta	ctcaaccaag	3060
tcattctgag	aatagtgtat	gcggcgaccg	agttgtctct	gcccggcgctc	aacacgggat	3120
aataccgcgc	cacatagcag	aactttaaaa	gtgctcatca	ttggaaaacg	ttcttcgggg	3180
cgaaaactct	caaggatctt	accgctgttg	agatccagtt	cgatgtaacc	cactcgtgca	3240
cccaactgat	cttcagcatc	ttttactttc	accagcgttt	ctgggtgagc	aaaaacagga	3300
aggcaaaatg	ccgcaaaaaa	gggaataaag	gcgacacgga	aatgttgaat	actcatactc	3360
ttcctttttc	aatattattg	aagcatttat	cagggttatt	gtctcatgag	cggatacata	3420
tttgaatgta	ttttagaaaa	taaacaaaag	agtttgtaga	aacgcaaaaa	ggccatccgt	3480
caggatggcc	ttctgcttaa	tttgatgcct	ggcagtttat	ggcgggctgc	ctgcccgcga	3540
ccctccgggc	cgttgcttcg	caacgttcaa	atccgcctcc	ggcggatttg	tcctactcag	3600
gagagcggtc	accgacaaac	aacagataaa	acgaaaaggc	cagtctttcg	actgagcctt	3660
tcgttttatt	tgatgcctgg	cagttcccta	ctctcgcatg	gggagacccc	acactaccat	3720
cggcgctacg	gcgttttact	tctgagttcg	gcatggggtc	aggtgggacc	accgcgctac	3780
tgccgccagg	caaattctgt	tttatcagac	cgcttctgcg	ttctgattta	atctgtatca	3840
ggctgaaaaat	cttctctcat	ccgcaaaaaa	agaagctagc	ggccgatc		3888

<210> 10
 <211> 12
 <212> RNA
 <213> Influenza A virus

<400> 10
 ccugcuuuug cu

12

<210> 11
 <211> 12
 <212> RNA
 <213> Influenza B virus

<220>
 <221> variation
 <222> 1...2
 <223> a or g or c or t/u at position 1 or 2

<400> 11
 nnygcuucug cu

12

~7048421

<210> 12
<211> 12
<212> RNA
<213> Influenza C virus

<400> 12
ccugcuucug cu

12

<210> 13
<211> 12
<212> RNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Modified
influenza A 3' sequence (pHL1104 and 1920)

<400> 13
ccuguuucua cu

12

<210> 14
<211> 12
<212> RNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Modified
influenza A 3' sequence (pHL1948)

<400> 14
ccucguucuc cu

12

<210> 15
<211> 13
<212> RNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Modified
influenza A 5' sequence (pHL1920)

<400> 15
agaagaaucag

13

<210> 16
<211> 13
<212> RNA
<213> Influenza A virus

<400> 16
aguagaaaca agg

13

<210> 17
<211> 13
<212> RNA
<213> Influenza B virus

~7048421

<220>
 <221> variation
 <222> 12...13
 <223> a or g or c or t/u at position 12 or 13

<400> 17
 aguagwaaca rnn 13

<210> 18
 <211> 13
 <212> RNA
 <213> Influenza C virus

<400> 18
 agcaguagca agr 13

<210> 19
 <211> 21
 <212> RNA
 <213> Influenza A virus

<220>
 <221> variation
 <222> 14...16
 <223> a or g or c or t/u at position 14 or 15 or 16

<400> 19
 aguagaaaca aggnnnuuuu u 21

<210> 20
 <211> 21
 <212> RNA
 <213> Artificial Sequence

<220>
 <221> variation
 <222> 14...16
 <223> a or g or c or t/u at position 14 or 15 or 16
 Description of Artificial Sequence: Modified
 influenza A 5'-sequence (pHL1920)

<400> 20
 agaagaauca aggnnnuuuu u 21

<210> 21
 <211> 21
 <212> RNA
 <213> Influenza B virus

<220>
 <221> variation
 <222> 12...16
 <223> a or g or c or t/u at position 12 or 13
 or 14 or 15 or 16

~7048421

<400> 21
aguagwaaca rnnnnnnuuuu u

21

<210> 22
<211> 19
<212> RNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Modified
influenza C 5' sequence

<400> 22
aguaguaaca agrguuuuu

19

<210> 23
<211> 15
<212> RNA
<213> Artificial Sequence

<220>
<221> variation
<222> 1...3
<223> a or g or c or t/u at position 1 or 2 or 3
Description of Artificial Sequence: Modified
influenza A 3' sequence (pHL1104 and 1920)

<400> 23
nnnccucuuu cuacu

15

<210> 24
<211> 15
<212> RNA
<213> Artificial Sequence

<220>
<221> variation
<222> 1...3
<223> a or g or c or t/u at position 1 or 2 or 3
Description of Artificial Sequence: Modified
influenza A 3' sequence (pHL1948)

<400> 24
nnnccucguu cuccu

15

<210> 25
<211> 15
<212> RNA
<213> Artificial Sequence

<220>
<221> variation
<222> 1...5
<223> a or g or c or t/u at position 1 or 2
or 3 or 4 or 5
Description of Artificial Sequence: Modified
influenza B 3' sequence

<400> 25

~7048421

15

nnnnnyguuu cuacu

<210> 26

<211> 14

<212> RNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Modified
influenza C 3' sequence

<400> 26

ccccuguuuc uacu

14